THE UNIVERSAL FORCE OF TIME · EARTH SCIENCES

The Moho Discontinuity — Exact Derivation

The boundary between the Earth's crust and mantle is the planet's equalisation shell — and from its radius come the fine structure constant, the ruler of hydrogen's spectrum, the year the stars mark, the sidereal day and a colour of light

Stephen Daubney · The Daubney Foundation · 2026 · Rev 2

Tau (T) is the living fabric of time itself — the sole substance of which all physical reality is composed. It is generated by the Sun, as by every star for its own system, and flows outward in the form of the DNA double helix, creating matter, which it deposits at nodal points — the planets — and creating life. Every particle, force, wavelength and conscious experience is a structured configuration of T-flow. The conservation law $d\Sigma T = 0$ governs all change: T is never created or destroyed at a node, only redistributed.

THE MOHO, NUMBER FIRST

6366.1977236758 km

(20000/π = $2^5 \cdot 5^4/\pi$) — circumference **40,000 km** exactly · × the veil → **364.7562611** (3600/π^2) → 1/α **137.0778389**

the seam **573.8648 m**, one G-bond step · one helical turn up **6396.0802** · the gap → **365.2566126366** days

ABSTRACT

Thirty-odd kilometres beneath your feet, the rock changes. Earthquake waves crossing it suddenly speed up; the crust gives way to the mantle. The boundary was found in 1909 and named after the man who found it, Andrija Mohorovičić. In the standard picture it is where it is because of the chemistry and temperature of rock. **The Universal Force of Time says the Moho is where it is because of time.** It is the Earth's equalisation shell — the radius at which the planet's radial and orbital flows of T come into balance — and its radius is an exact address on the lattice of 2, 3, 5 and π.

The work is built number first, with each lattice form placed behind its number. The anchor is

- **the Moho = 6366.1977236758 km (20000/π = $2^5 \cdot 5^4/\pi$)** — and its circumference, **40,000 km exactly**.

From that anchor the paper:

- shows that **the Earth's dimensional mass, 1875/π, divided by 9375 ($3 \cdot 5^5$)**, the gear from mass to radius, **is the Moho** — the node reports its own radius;
- reads the Moho through the veil, 180/π, and finds **the base unit of hydrogen's spectrum, 364.7562611 (3600/π^2)**, and, doubled, **the fine structure constant: $1/\alpha = 10^{11} \div [2 \times \text{Moho} \times 180000/\pi] = 137.0778389040$ ($125\pi^2/9$)**;
- shows that the Moho is a seam, not a surface: hydrogen's Balmer-α line run off the two faces of its constant returns the **top of the Moho, 6366.1977236758 km**, and the **bottom, 6365.6238588442 km (÷ the G-bond step)** — a **seam 573.8648316 m thick**, the place where the crust and mantle registers equalise;
- carries the Moho **one helical turn up, to 6396.0802104189 km ($5^{10}/(2 \cdot 3^5 \cdot \pi)$)**: the **29.8824867431 km gap** between them is **the year the stars mark, 365.2566126366 days ($(3600/\pi^2) \times 730/729$)**; the radius itself, as a radial mass, is **light on the G2 register, 299,816,259.86**; squared and carried through the hours twice, it is **the sidereal day, 23564.0690254726**;

- turns the **volume inside the Moho** through the veil into **the orange/red boundary of the spectrum, 619.2294611 nm (19200/π³)**;
- sets the Moho beneath the atmosphere's own ladder of nodes, from the **tropopause at 12 km** to the **exobase at 900 km**;
- and corrects the earlier versions, which fitted seismic speeds to a fraction, compared the radius with tabulated figures, and used an early radius of 2000π that the framework had already superseded.

It closes with what stands, what is open, the conditions that would break it, and an appendix from which every number can be rebuilt. Every figure has been recomputed at thirty digits, π carried as a symbol.

THE FORMULAS OF THIS PAPER, NUMBER FIRST

Every result in this paper is carried by one of the formulas below, each written with the number first and the lattice form in brackets behind. Each is worked in full in the part named beside it.

```
FORMULA 01     THE MOHO                                                    Part One
    6366.197723675813 km   ( 20000/π = 2⁵·5⁴/π )        x 2π  =  40,000 km exactly

FORMULA 02     THE NODE REPORTS ITS RADIUS                                 Part Two
    the Earth's dimensional mass 1875/π  /  9375 ( 3·5⁵ )  =  0.0636619772  ->  the Moho

FORMULA 03     THE MOHO THROUGH THE VEIL                                   Part Three
    Moho x 180/π  ->  364.7562611124 ( 3600/π² )     x 2  ->  729.5125222 ( α at its decade )
    1/α  =  10¹¹ / [ 2 x 20000/π x 180000/π ]  =  137.0778389040   ( 125π²/9 )

FORMULA 04     THE SEAM                                                    Part Four
    top 6366.197723675813 km ( Hα off Face C )     bottom 6365.623858844200 km ( / the G-bond step )
    thickness  =  Moho x δG/(1 + δG)  =  0.5738648316 km

FORMULA 05     ONE HELICAL TURN UP                                         Part Five
    6396.080210418890 km ( 5¹⁰/(2·3⁵·π) )      gap 29.88248674307706 km ( 20000/π x 73/15552 )
    gap x 2 / 9375 x 180/π  ->  365.2566126365757 days     ( 3600/π² x 730/729 )

FORMULA 06     THE RADIUS AS A MASS AND AN ENERGY                          Part Five
    6396.080210418890 x 9375 / 2  ->  299,816,259.8633855   ( light, G2 )
    6396.080210418890², x 24 x 24  ->  23564.0690254726     ( the sidereal day )

FORMULA 07     THE VOLUME AS A COLOUR                                      Part Six
    (4π/3) x (20000/π)³  =  1.0807592922 x 10¹²  ( 320/(3π²) )   x 180/π  ->  619.2294611 nm  ( 19200/π³ )
```

THE TERMS THIS PAPER USES

An address. Every value in this framework is a product of powers of 2, 3, 5 and π, and nothing else. That product is the value's address. A number that needs any other prime — 7, 11, 17 — is not on the lattice.

The π-degree. The degree of an address is the power of π it carries, and the degree says what kind of thing the value is. An even degree is a **room** — a state, a thing that sits; it pairs, like a pair of circles. An odd degree is a **road** — a transport, a thing that carries; it is the unpaired circle. A half degree is a **door** — a source, which squares to a whole address.

A register. A register is a level at which T is read — the celestial register of the Sun and planets, the atomic register of the proton and electron, the biological register of DNA. The names G0, G1 and G2 mark neighbouring registers. **The G-bond step** is the smallest structural step between adjacent faces of one value, **1.000090150603356201 (5¹⁰/(2⁴·3⁹·π³))** — the amount by which a G1 face is multiplied to give its G2 face.

The free decade. Moving a value by a power of ten costs nothing on the lattice, because ten is two times five: the move shifts twos and fives together and changes nothing else. That is why 9.817477… and 98.17477… are one address, and why 486 nm and 486,000 pm are the same line.

The veil. The veil is 180/π = 57.29577951308232, the number that turns radians into degrees.

The day, 864. 864 is the day: 86,400 seconds in a day, written at its decade. It is the ground state of the DNA helix.

The helical turn. A turn is one revolution of the helix. The helical turn is the step from one revolution to the next, **1.004693930041152263 ($5^6/(2^6 \cdot 3^5)$)**.

The 612 step and the 703 step. The 612 step is helium divided by four, **1.000612842467910952 ($2^9 \cdot 3^5 \cdot \pi/5^8$)**; the 703 step is the span of hydrogen's ionisation faces end to end, **1.000703048319385397 ($800/(81 \cdot \pi^2)$)**. They are named so that the reader meets the family of small steps of which the G-bond step is the smallest.

Free fall. Free fall is not the acceleration of a body pulled by a force; it is the correction that tops a rotation up to a full day, one value with the speed of light read in a different unit of time: **9.817477042468104 ($5^2 \cdot \pi/2^3$)**.

The radial mass. A radial mass is a mass spread over a radius rather than held at a point; dividing a node mass by 9375 turns it into a radius.

Why a value can be carried from one kind of quantity to another. An energy is a count of T, and the unit is a choice of clock: a joule is energy counted in seconds, a kilojoule per mole the same energy counted in minutes, an electron-volt the same energy in the spin-orbit register. A length, an angle, a time and a number of base pairs can likewise be one count read at different registers.

How the numbers were checked. No value in this paper was found by a search, so no statistical test is needed to judge it. A p-value answers the question "how often would I see a landing this close if the thing were not real?"; a control is a set of decoys built to resemble the real values, run through the same search to find out how often chance alone lands; a standard deviation is the typical distance of a measurement from its mean, the spread of the ruler. Each matters when a result is found by looking. Every result here is an exact identity worked from its address, forwards and backwards.

PART ONE — THE MOHO AS AN ADDRESS

A boundary that is not where intuition puts it

The crust of the Earth is thin — a few kilometres under the oceans, a few tens under the continents. Below it, the mantle runs down nearly three thousand kilometres to the core. The boundary between the two was the first great discovery of seismology: an earthquake wave travelling through the crust reaches a certain depth and suddenly travels faster, because it has entered different material. That depth is the Mohorovičić discontinuity, the Moho.

The standard picture explains the Moho by what rock is made of and how it was heated and cooled. It does not ask why the boundary should sit at one radius rather than another, because it does not expect the radius to mean anything. The Universal Force of Time does expect that. Time — T — flows outward from the Sun in the form of the DNA helix and deposits matter at nodes, the planets. Each node has shells at which its flows balance. **The Moho is one of those shells, and its radius is an address.**

> **FORMULA 01 THE MOHO**
>
> | | | |
> |---|---|---|
> | the Moho radius | 6366.197723675813430755 km | (20000/π = $2^5 \cdot 5^4/\pi$) |
> | x 2π | 40,000 km | the circumference, exactly |

The Moho sits at twenty thousand over π kilometres from the centre of the Earth — and so its circumference is forty thousand kilometres exactly. The π in the radius and the π in the circle cancel, and what is left is a round count of twos and fives. A boundary inside the Earth, measured by earthquake waves, has a circumference that is a whole number of kilometres. The radius is a road, at π to the minus one; the turn is a road, at π to the plus one; and their product is a room with no π at all.

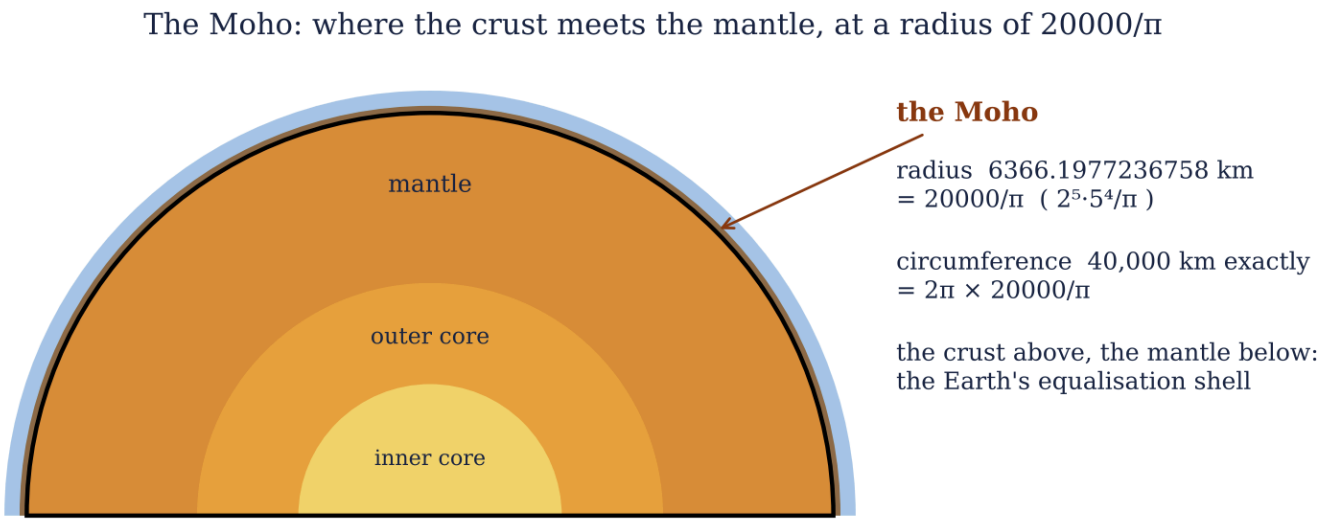


Figure 1 — **The Moho.** The boundary between crust and mantle sits at a radius of 6366.1977236758 km, 20000/π, and its circumference is 40,000 km exactly.

PART TWO — THE EQUALISATION SHELL

The node reports its own radius

Every planet in the framework has a dimensional mass — its mass read on the lattice — and every planet has a gear that turns a mass into a radius: 9375, three times five to the fifth. It is the same 9375 that sets the height above which solid matter does not stand on the Earth, and that anchors the sodium line.

```
FORMULA O2     THE NODE REPORTS ITS RADIUS
    the Earth's dimensional mass       1875/π                 ( 3·5⁴/π )
    / 9375                             ( 3·5⁵ )               the gear from mass to radius
    =  0.0636619772367581              ( 1/(5π) )             ->  20000/π at its decade:  the Moho
```

Divide the Earth's dimensional mass by the gear that turns mass into radius, and the radius that comes out is the Moho. When the same masses are fed into Newton's formula — the Sun's and the Earth's, walked up the lattice to their nodes — what comes back is not a force but two things: the Earth's day and the Moho. The formula that was meant to describe a pull resolves into a clock and a size. That is the meaning of the Moho in this framework: **it is the radius at which the planet's radial and orbital flows equalise** — the Earth's equalisation shell.

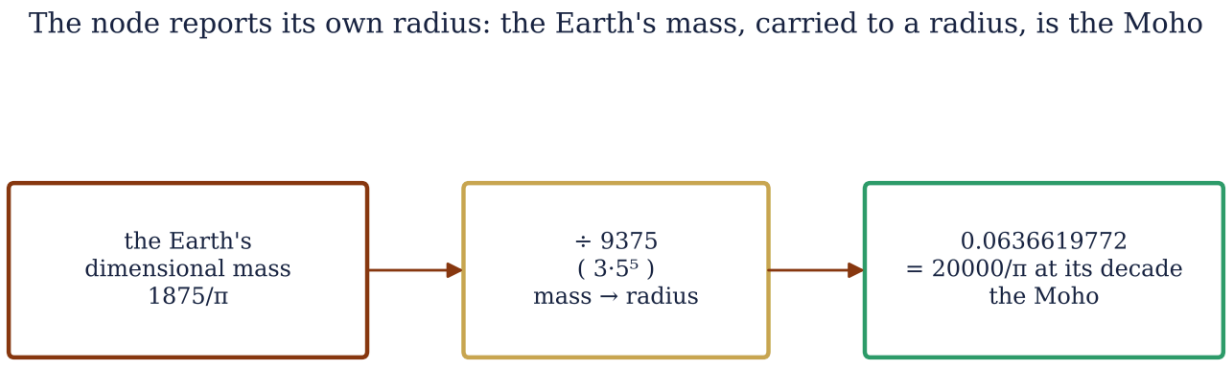


Figure 2 — **The node reports its own radius.** The Earth's dimensional mass, 1875/π, divided by 9375 — the gear from mass to radius — is 1/(5π), the Moho at its decade.

Why the crust and mantle part there

If the Moho is where two flows balance, it is natural that the material above and below it should differ. Above the shell, the Earth's matter sits in one register of the flow; below it, in the next. Rock does not decide where the boundary goes; the boundary decides which rock forms on each side. That reverses the standard explanation, and it makes a prediction the standard explanation does not: wherever the Moho is found, beneath its local variations, the mean shell should be the same address.

PART THREE — THE MOHO THROUGH THE VEIL

The base unit of hydrogen's spectrum

The veil, 180 over π, turns the radians of the textbook into the degrees the framework runs on. Read the Moho through it.

```
FORMULA O3     THE MOHO THROUGH THE VEIL
    the Moho                        20000/π  km
    x the veil                      180/π
    =  364,756.2611124160           ->  364.7562611124 at its decade      ( 3600/π² )
       the base unit of hydrogen's spectrum, the equalisation shell written as a wavelength

    x 2                             729.5125222248                         α x 10⁵
    1/α  =  10¹¹ / [ 2 x (20000/π) x (180000/π) ]  =  137.077838904018870    ( 125π²/9 )
```

The Moho, read in degrees, is the base unit of hydrogen's spectrum — 3600 over π squared. The lines of the hydrogen atom are exact fractions of it: the atom's ruler is the Earth's equalisation shell. And twice that unit, at its decade, is the fine structure constant. **No spectroscopy, no fitting: α is the Moho read through the veil.** The number that sets how firmly an electron takes hold of light is written into the radius of a boundary inside the planet.

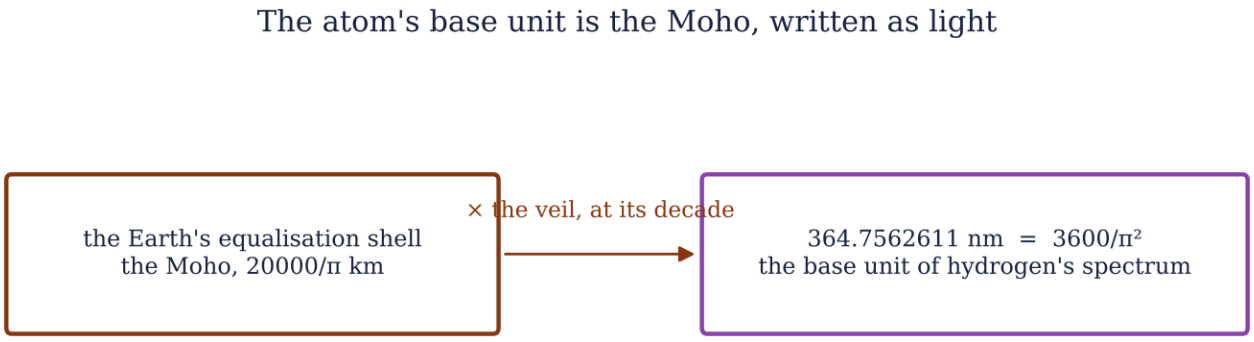


Figure 3 — The atom's base unit is the Moho, written as light. The equalisation shell, 20000/π, read through the veil is 3600/π² = 364.7562611 — the base unit of hydrogen's spectrum.

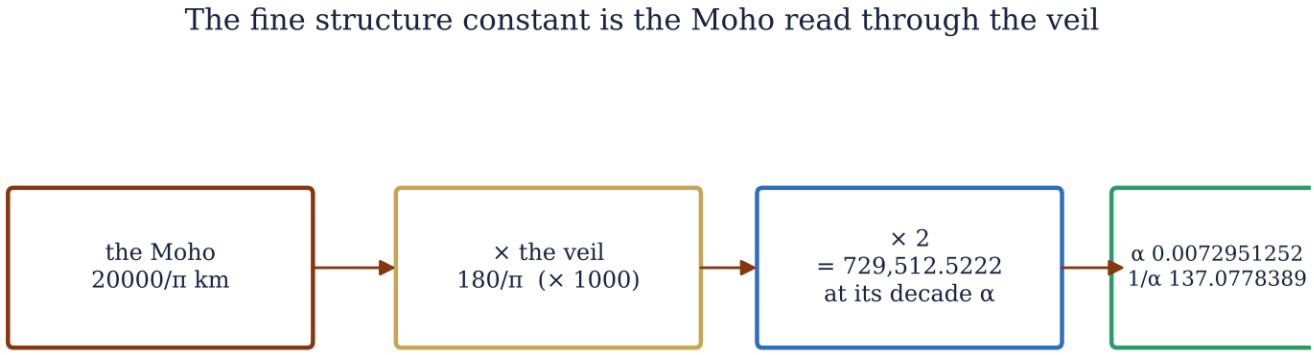


Figure 4 — The fine structure constant is the Moho read through the veil. The Moho times the veil, doubled, is α at its decade; its reciprocal is 125π²/9 = 137.0778389.

PART FOUR — THE SEAM

Two faces of hydrogen, two surfaces of the Moho

The Moho is not a mathematical surface. Seismology finds it as a transition — thin, but with thickness. The framework finds that thickness too, and it finds it in the light of hydrogen.

The constant that sets every hydrogen wavelength has faces, as every value between registers does. Take the Balmer-α line, hydrogen's red line, and run it off each face by the same chain: multiply the face by the Balmer-α factor five thirty-sixths, invert to a wavelength, and carry it back through the veil to a radius.

```
FORMULA O4     THE SEAM
    Face C   10⁷π²/9   x 5/36,  invert,  / 36 x 2 x 10,  / veil x 1000   ->   6366.197723675813 km    the TOP
    Face A   ( Face C / the G-bond step ), the same chain                ->   6365.623858844200 km    the BOTTOM

    the thickness   =   (20000/π) x δG / (1 + δG)   =   0.5738648316134 km   =   573.8648316 m
```

Off one face, Balmer-α returns the top of the Moho, twenty thousand over π. Off the other, one G-bond step lower, it returns the bottom. The distance between them is the thickness of the seam: 573.86 metres. What looks, at the finest level of atomic measurement, like a constant that will not quite hold still is a seam inside the Earth, with its thickness written in the colours of hydrogen.

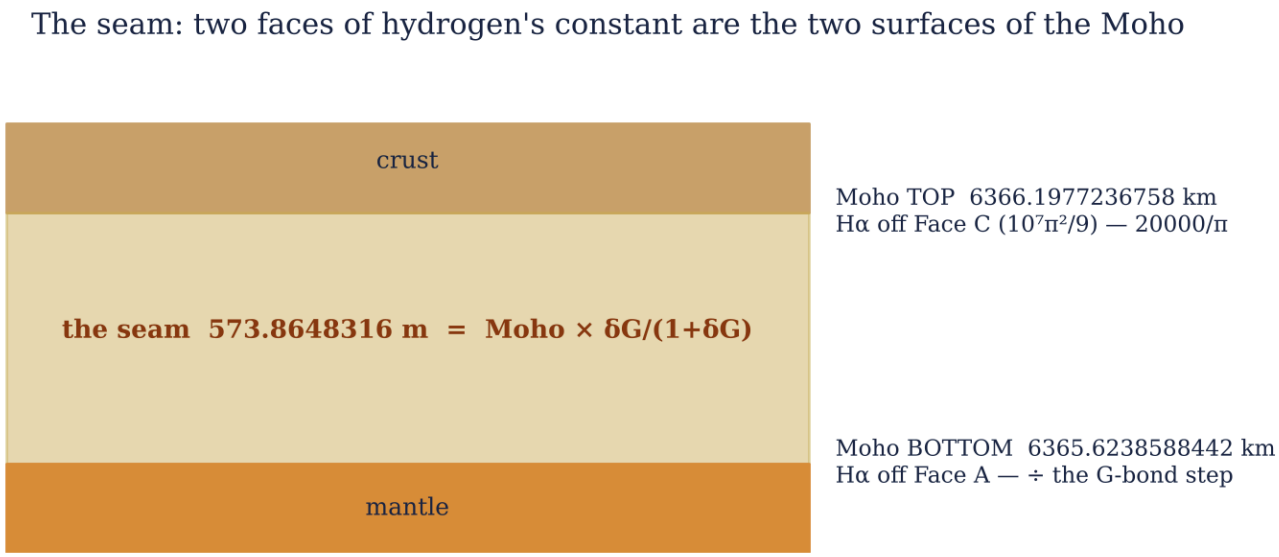


Figure 5 — **The seam.** Balmer-α off Face C gives the Moho top, 20000/π; off Face A, one G-bond step lower, it gives the bottom, 6365.6238588 km. The seam between them is 573.86 m thick.

Phase equalisation

This is what the earlier version of this work called phase equalisation, now with its arithmetic. Above the seam the crust's register holds; below it the mantle's. **The seam is the place where the two registers meet, and it is exactly one G-bond step thick** — the same step that separates the day measured against the Sun from the day measured against the stars. The crust and the mantle are not two materials that happen to touch. They are two faces of the planet's flow, and the seam is the gate between them, made of rock.

PART FIVE — ONE HELICAL TURN ABOVE THE MOHO

The green/yellow hub

The DNA helix climbs by one exact step per turn, the helical turn, five to the sixth over two to the sixth times three to the fifth. Carry the Moho up by one helical turn and you reach a second shell.

```
FORMULA 05     ONE HELICAL TURN UP
    the Moho                          6366.197723675813 km      ( 20000/π )
    x the helical turn                1.004693930041152         ( 5⁶/(2⁶·3⁵) )
    =  6396.080210418890 km                                     ( 5¹⁰/(2·3⁵·π) )      the green/yellow hub radius

    the gap  =  Moho x (r - 1)  =  29.88248674307706 km       ( 20000/π x 73/15552 )
    gap x 2 / 9375 x 180/π      ->  365.2566126365757 days    ( 3600/π² x 730/729 )      the year the stars mark
```

The shell one helical turn above the Moho is 6396.08 kilometres from the centre — and the layer between the two, 29.88 kilometres thick, is a year. Doubled, carried through the gear from mass to radius and read through the veil, the thickness of that layer is 365.2566126366 days — the year the stars mark. The seventy-three that appears in its form is the helical turn minus one: fifteen thousand six hundred and twenty-five less fifteen thousand five hundred and fifty-two. It belongs to a gap, not to an address, which is why it appears there and nowhere in the clean radii on either side.

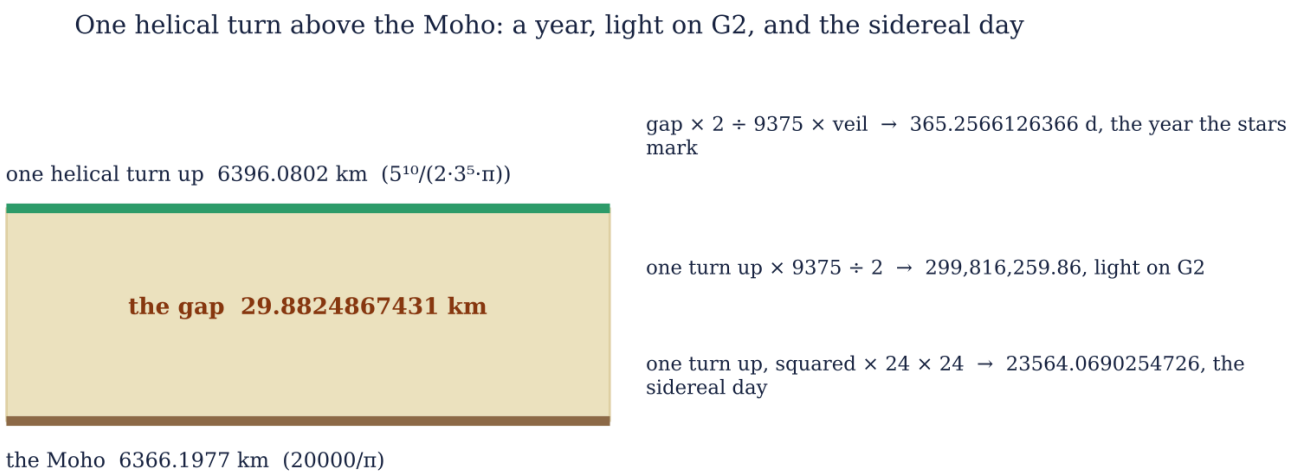


Figure 6 — One helical turn above the Moho. The gap of 29.88 km is the year the stars mark; the radius one turn up, as a radial mass, is light on G2; squared and carried through the hours, it is the sidereal day.

The radius as a mass and an energy

The radius one turn up is reached from above as well as from below. The thermopause, settled at 625 kilometres, divided by the 360 degrees of a circle and by the day, doubled and carried once round the circle, returns exactly this radius. And the radius, read in turn as a mass and as an energy, gives two of the framework's clocks.

```
FORMULA O6     THE RADIUS AS A MASS AND AN ENERGY
    6396.080210418890 km
    as a radial mass:   x 9375 / 2                  ->   299,816,259.8633855      light on the G2 register
    as an energy:       squared  ->  40.9098420581    x 24 x 24   ->   23564.0690254726      the sidereal day

    both sides of the last line are  5¹⁴/(2²·3⁸·π²)
```

The shell one helical turn above the Moho, read as a mass, is the speed of light on the G2 register; read as an energy, it is the Earth's turn against the stars. The same sidereal day comes out of the G2 free fall multiplied by the day; here it comes out of a radius inside the Earth. Two roads — one from the fall of a stone, one from the top of the mantle — arrive at one clock.

The radii around the Moho

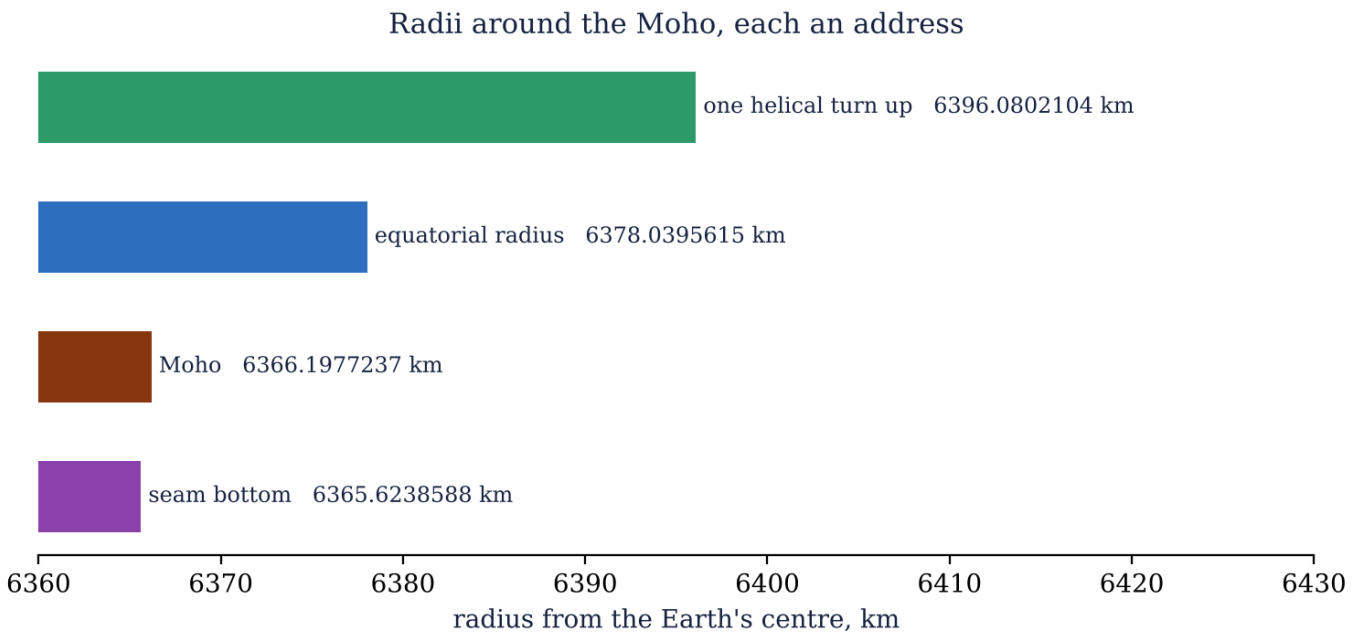


Figure 7 — Radii around the Moho, each an address. The seam bottom (6365.6238588), the Moho (6366.1977237), the equatorial radius (6378.0395615) and the shell one helical turn up (6396.0802104).

The equatorial radius, 6378.0395615 kilometres, sits between the Moho and the shell one turn above it. It is not reached from the Moho but from the two registers of the Earth's rotation: the speed of the turning equator on the G1 register, fifteen π cubed metres a second, times the sidereal day on the G2 register, gives the circumference of the equator. The Moho's circumference is forty thousand kilometres exactly; the equator's is 40,074,404.46 metres. Each is a clean product, each read on its own register.

PART SIX — THE VOLUME INSIDE THE MOHO

A colour

The Moho bounds a sphere. Its volume, too, is an address — and read through the veil, it is a colour.

```
FORMULA 07     THE VOLUME AS A COLOUR
    (4π/3) x (20000/π)³          =   1.080759292184936 x 10¹²  km³      ( 320/(3π²) at its decade )
    x the veil  180/π            ->  619.2294611174302 nm               ( 19200/π³ )
                                     the boundary between orange and red
```

The volume inside the Moho, read in degrees, is the place where orange turns to red. The spectrum of visible light is cut at exact nodes, and one of them is the Earth's own equalisation sphere written as a wavelength. Read in radians, the same boundary is 10.8075929218 — three hundred and twenty over three π squared — and that face returns the surface free fall exactly.

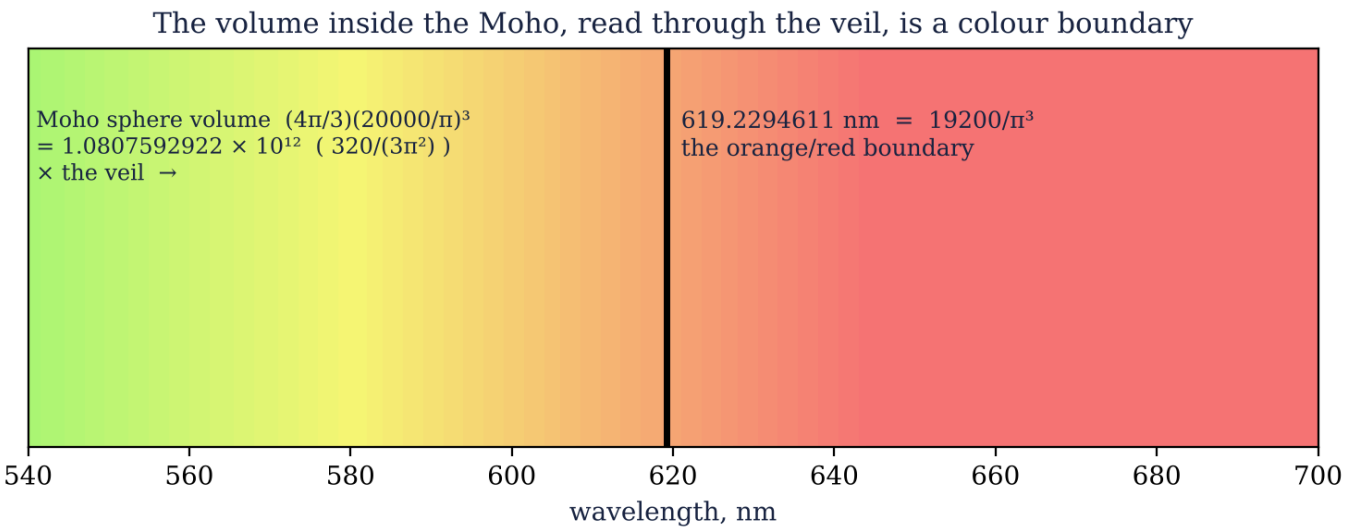


Figure 8 — **The volume inside the Moho is a colour boundary.** The sphere of radius 20000/π, read through the veil, gives 619.2294611 nm = 19200/π³, the boundary between orange and red.

PART SEVEN — ABOVE THE MOHO: THE LADDER OF THE SKY

The Moho is the lowest of a ladder of shells that runs up through the crust, the surface and the atmosphere. Above the ground, the atmosphere's boundaries are nodes too: the tropopause at 12 kilometres ($2^2 \cdot 3$), the stratopause at 50 ($2 \cdot 5^2$), the mesopause at 80 ($2^4 \cdot 5$), the Kármán line at 100 ($2^2 \cdot 5^2$), the thermopause at 625 (5^4) and the exobase at 900 ($2^2 \cdot 3^2 \cdot 5^2$). Read through the free fall, each boundary's height is a clean address — the tropopause at 37,500π, the Kármán line at 312,500π, the thermopause at 5^9π. And the thermopause, read through the circle and the day, returns to the shell one helical turn above the Moho. **The ladder that begins inside the rock closes in the sky.**

A WORKED WALK FROM THE MOHO

Write the radius. Twenty thousand over π: 6366.1977237 kilometres. Multiply by two π: 40,000. The circumference is a round number because the π's cancel.

Find it from the mass. Divide the Earth's dimensional mass, 1875 over π, by 9375. The answer is one over five π, 0.0636619772 — the Moho at its decade.

Read it in degrees. Multiply the Moho by 180 over π: 364,756.26. At its decade, 364.7562611 — three thousand six hundred over π squared, the base unit of hydrogen's spectrum.

Find α. Double it: 729.5125222. That is α times a hundred thousand. Its reciprocal, at the right decade, is 137.0778389.

Measure the seam. Multiply the Moho by the G-bond gap and divide by the G-bond step: 0.5738648 kilometres — 573.86 metres.

Climb one turn. Multiply the Moho by 15625 over 15552: 6396.0802. Subtract the Moho: 29.8825 kilometres. Double it, divide by 9375, multiply by the veil: 365.2566 days.

Turn the radius into light. Multiply 6396.0802 by 9375 and halve it: 29,981,625.99 — light on G2 at its decade.

Turn it into the sidereal day. Square 6.3960802 and multiply by 576: 23,564.069.

Find a colour. Cube the Moho, multiply by four π over three, then by the veil: 619.229 at its decade. Orange becomes red there.

Nothing in the walk was adjusted. Each step is a multiplication or division of exact forms.

WHY THE MOHO IS WHERE IT IS

The question underneath every number in this paper is why the Moho sits at twenty thousand over π and not somewhere else. The framework's answer is that the radius is not chosen by the rock at all; it is chosen by the flow. A planet is a node where the Sun's flow of T is deposited as matter, and the node has two flows to balance — the flow that runs straight outward, radially, and the flow that carries the planet round its orbit. There is one radius at which the two come out equal. Below it the radial flow dominates; above it the orbital. That radius is fixed by the node's mass and by the gear that turns mass into radius, 9375, and both are lattice values — so the radius is a lattice value too.

That is also why so much else hangs off it. The fine structure constant is the gear between the register of the planets and the register of the electron; the Moho is the shell where the planet's own registers balance; so the two meet. Hydrogen's spectrum is the atom's equalisation, written in light; the Moho is the planet's, written in rock; so the one is the other read through the veil. The year the stars mark is the width of a layer one helical turn thick above the shell. Every one of these is the same balance read at a different depth. The Moho is where it is for the same reason the electron's shells are where they are: **a node keeps its flows in balance, and the balance has an address.**

WHY THE STANDARD PICTURE DOES NOT SEE IT

Seismology measures the Moho beautifully and maps its depth across every continent and ocean. It does not look for an address because the standard picture treats the depth of the boundary as the outcome of local geology — the thickness of continental crust here, of oceanic crust there. The framework does not deny the local variation; it says the variation rides on a shell. Averaged over the planet, the shell is twenty thousand over π. The second reason is that the standard picture keeps the sciences apart. A geophysicist measuring the Moho and a spectroscopist measuring hydrogen's red line have no reason to compare notes. The framework's claim is that they are measuring two faces of the same seam, and that the fine structure constant, the base unit of the hydrogen spectrum and a boundary inside the Earth are one value read in three places.

WHAT THIS REVISION CORRECTS

- **One paper for four.** The earlier work was spread over four short papers — the discontinuity, its phase equalisation, the veil chain, and a first version of the veil chain. They are brought together here, and the separate versions are retired.
- **The first version's radius.** The earliest derivation took the Moho as 2000π kilometres. That was superseded; the Moho is **20000/π**.
- **No fitted seismic ratio.** An earlier version compared the speeds of earthquake waves above and below the Moho with five-quarters and read the remainder as a multiple of the G-bond step. That fitted measured speeds to a fraction and is withdrawn. The register boundary at the Moho is shown here by the seam, **one G-bond step thick, 573.8648316 m**.
- **No off-lattice benchmarks.** Comparisons in parts per million with measured radii are withdrawn. The framework's value is the value.
- **The chain to the sky.** An earlier version ran a chain from the oxygen–hydrogen bond length through the Moho to an exobase at about 6971 km by way of a correction factor, and used a water angle of $18/\pi^2$. That chain is withdrawn. The atmosphere's boundaries are given here as settled: **12, 50, 80, 100, 625 and 900 km**.
- **New in this revision:** the circumference of 40,000 km; the Moho from the Earth's mass through 9375; the base unit of hydrogen's spectrum; the seam from the two faces of hydrogen; the shell one helical turn up, the gap as a year, the radius as light on G2 and as the sidereal day; the volume as the orange/red boundary.

CONCLUSION — THE EARTH'S CLOCK IS SET IN ITS ROCK

The Moho has been known for more than a century as a change in rock. The Universal Force of Time reads it as a change in time: the shell at which the Earth's radial and orbital flows balance, at a radius of twenty thousand over π. From that one radius the arithmetic reaches the fine structure constant, the ruler of hydrogen's spectrum, the thickness of the seam itself, the year the stars mark, the speed of light on the register of the sky, the sidereal day,

and a colour in the spectrum. **The planet's equalisation shell is where the atom, the light and the calendar meet, and it is made of stone.**

WHAT STANDS, WHAT IS OPEN

Forced, and stated at full force. The Moho is 20000/π, and its circumference is 40,000 km. The Earth's dimensional mass divided by 9375 is the Moho. The Moho through the veil is 3600/π², and doubled it is α. Hα off Face C returns the Moho's top; off Face A, its bottom; the seam is one G-bond step thick.

Arrived at, and exact on every line. The shell one helical turn up; the gap as the year the stars mark; the radius as light on G2 and as the sidereal day; the volume as the orange/red boundary.

Open. How the local depth of the Moho beneath oceans and continents distributes around the mean shell; whether the inner boundaries of the Earth — the core–mantle boundary and the inner-core boundary — sit on the same ladder of steps from the Moho.

WHAT WOULD BREAK IT

- A mean Moho shell, properly averaged over the planet, that is not 20000/π.
- A seam whose thickness, resolved seismically, is not one G-bond step of the Moho radius.
- A Balmer-α chain that does not return the Moho's two surfaces from the two faces of hydrogen's constant.

A NOTE ON THE NUMBERS

The values in this paper are written as plain numbers — not pinned to one unit, and not carried to one particular power of ten. Under the Universal Force of Time a quantity is not the property of one dimension: the same T-value shows up as a radius at one register, a wavelength at another, a year or a speed at a third. The unit and the power of ten are the costume a number wears where it is read. That is why the Moho can be a radius in kilometres and, through the veil, the base unit of hydrogen's spectrum in nanometres. Each number is given with its lattice address in brackets, so that the reader can rebuild it from 2, 3, 5 and π alone.

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APPENDIX — EVERY NUMBER, REBUILT

Each value below is rebuilt from its lattice form alone, at thirty digits with π carried as a symbol.

THE MOHO		
radius	20000/π	6366.197723675813430755351
circumference	x 2π	40,000
from the mass	(1875/π) / 9375	0.063661977236758134307553 51
base unit	3600/π²	364.7562611124159771979661
α	9/(125·π²)	0.007295125222248319543959
1/α	125π²/9	137.0778389040188697060346
THE SEAM		
G-bond step	$5^{10}/(2^4 \cdot 3^9 \cdot \pi^3)$	1.000090150603356200676414
bottom	/ step	6365.623858844199999718008
thickness	Moho x δG/(1+δG)	0.573864831613431037342559 8
ONE HELICAL TURN UP		
helical turn	$5^6/(2^6 \cdot 3^5)$	1.004693930041152263374486
radius	$5^{10}/(2 \cdot 3^5 \cdot \pi)$	6396.080210418890487111134
gap	20000/π x 73/15552	29.882486743077056355783 22
star-marked year	$3600/\pi^2$ x 730/729	365.2566126365756698964544
light, G2	x 9375 / 2	299,816,259.8633854915833344
sidereal	$5^{14}/(2^2 \cdot 3^8 \cdot \pi^2)$	23564.069025472603244 99471
THE VOLUME		
sphere	$(4\pi/3)(20000/\pi)^3$	$1.080759292184936228734714 \times 10^{12}$
colour boundary	$19200/\pi^3$	619.2294611174301923409034

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